Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_

**Notes Questions for the Unit 9 Notes, Part 2 – The Nervous System**

Mrs. Krouse, AP Biology

1. Identify the functions of the following parts of a neuron: dendrites, axon, axon terminals, Schwann cells
2. How is a reflex arc different from a normal neural signaling pathway? List the steps that occur in the knee jerk reflex.
3. What is the threshold and how is it related to the initiation of an action potential? Why is an action potential considered an “All or None” (aka “All or Nothing”) response?
4. What happens during the depolarization phase of an action potential? How are the voltage-gated sodium channels involved in this step?
5. What occurs during hyperpolarization / undershoot? How are the voltage-gated potassium channels involved in this step?
6. List the following steps of synaptic transmission in order. Indicate whether each step occurs in the presynaptic or postsynaptic neuron.
   * Neurotransmitter binds with receptors associated with the postsynaptic membrane.
   * Calcium ions (Ca2+) rush into neuron's cytoplasm.
   * An action potential depolarizes the membrane of the axon terminal.
   * The ligand-gated ion channels open.
   * The synaptic vesicles release neurotransmitter into the synaptic cleft.

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| **#** | **Step Description** | **Presynaptic or Postsynaptic Neuron?** |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |